

ABSTRACT OF THE DISCLOSURE

Supercapacitor cell electrode (13, 17) and separator (15)
5 elements are fabricated from activated carbon fabric and
membranes of microporous fibrillar ultra-high molecular weight
polyethylene and are laminated with electrically conductive
current collector elements (11, 19) to form a flexible, unitary
supercapacitor structure (10). The micro-fibrillar laminar
10 structure of the separator membrane material enables direct
application of cell lamination temperatures without resulting
collapse of separator microporosity and attendant loss of
essential electrolyte retention and ionic conductivity. The
superior functional materials enable the fabrication of
15 flexible, self-supporting cell structures which yield improved
specific energy capacity and increased voltage output for
utilization demands.